

What we claim is:

1. A computing device which comprises a receiver and transmitter, the
5 receiver being arranged to receive a plurality of data requests from a
plurality of data-receiving applications, said plurality of data requests
forming a request group, and also to receive data from a store, and the
transmitter being arranged to transmit data to said store and to transmit
received-data received from said store to said data-receiving applications,
10 further, said computing device being arranged to process requests for data
received by said receiver from said data-receiving applications, identify said
received data requests as belonging to the group, evaluate said requests and
to produce a single request for the data-requests within said request group
and generated by said evaluation and to cause said transmitter to transmit
15 said single request to said data-store and further to receive data from said
data-store, process said received-data and to transmit said received data, or
portions thereof, to at least one of said data-receiving applications.
2. A computing device according to claim 1 which is arranged such that
20 said evaluation comprises postponing sending said single request until all
requests within a request group have been received.
3. A computing device according to claim 1 which is arranged such that
said evaluation comprises sending said single request on receipt of the first
25 request within a request group.
4. A computing device according to claim 1 which is arranged such that
said evaluation comprises monitoring requests within a request group and
transmitting said single request when the computing device has received
30 sufficient data to create said single request from data-requests made thereto.

5. A computing device according to claim 1 which is arranged such that said evaluation comprises merging data-requests received from said data-receiving applications such that said single request comprises a consolidated request comprising at least portions of said data-requests.

5

6. A computing device according to claim 5 in which the data-requests comprise data providing a portion of a form.

7. A computing device according to claim 5 in which the single data-request comprises data providing all of, or substantially all of, a form.

10

8. A computing device according to claim 1 which is a proxy server and/or an application running on a data-receiving device and/or a store such as a server.

15

9. A computing device according to claim 1 which is arranged such that said identification of the received data-requests as belonging to a group is achieved by reading a portion of the data-request that provides a group identity.

20

10. A computing device according to claim 1 which is arranged to use the Hyper Text Transfer Protocol (http) for any of the following: receive data-requests; transmit said single request; receive data from said store; transmit data to said data-receiving applications.

25

11. A method of requesting data comprising receiving a plurality of data requests from a plurality of data-receiving applications, said plurality of data-requests forming a request group, evaluating said requests, identifying said received data requests as belonging to the group and producing a single request for data, to a store, for said request group generated by said evaluation, receiving received-data in response to said single request from

30

said store, processing said received-data and sending said received-data, or portions thereof, to at least one of said data-receiving applications.

12. A method according to claim 11 in which said evaluation comprises one of the following:

i. stalling said single request until all requests within a request group have been received;

ii. sending said single request on receipt of the first request within a request group;

10 iii. merging data-requests received from said data-receiving applications such that said single request comprises a consolidated request; and

iv. monitoring requests within a request group and transmitting said single request when the processor has received sufficient data from said data-requests to create said single request.

15

13. A system comprising at least two data-receiving applications running on one or more data-receiving devices, each data-receiving application being capable of requesting and receiving data, a data-processor and a data store connected to said data-receiving applications via said data-processor, said data-processor being arranged to receive a plurality of data-requests forming a request group from said data-receiving applications, to identify said received data requests as belonging to the group, to evaluate said data-requests and to send a single request for the data-requests within said request group to said data store and further being arranged to receive data from said data store, in response to said single request, process said received data and distribute said received data, or portions thereof, to at least one of said data-receiving applications.

14. A system according to claim 13 in which the data-receiving applications are arranged to communicate with one another via inter data-receiving application messages.

30

15. A system according to claim 13 in which a data-receiving application is arranged to generate and send a data-request to said data-processor following receipt of an inter data-receiving application message.

5

16. A system according to claim 13 in which said data-receiving applications are arranged to add a data-request group identity to said data request and/or a data-receiving device/application identity before or during transmission of said data-request to said data-processor.

10

17. A system according to claim 13 in which said data-receiving applications are arranged to add to said data request one of the following: the number of data-requests that are to be made to said data-processor, in a data-request group; or a list of the data-receiving applications/devices that are to make a data-request to said data-processor.

15

18. A system according to claim 13 in which said data-processor is arranged to identify the first data-request received thereby within a data-request group.

20

19. A system according to claim 18 in which said data-processor is arranged to transmit said single request once said first data-request received has been identified.

25

20. A system according to claim 18 in which said data-processor is arranged neither to transmit to said store nor respond to said data-requests which are within a data-request group which are not the first data-request received thereby in that data-request group until data has been received from said store in response to said single request transmitted following said first data-request.

30

21. A system according to claim 13, in which said data-processor is arranged neither to transmit to said data store nor respond to said data-requests within a data-request group until all data-requests in that data-request group have been received thereby.

5

22. A system according to claim 13 in which said data-processor is arranged to merge data-requests within a data-request group in to a consolidated request, comprising at least portions of said data-requests, and to send said consolidated request as said single request.

10

23. A system according to claim 22 in which said data-processor is arranged to delay sending said single request to said data store until said data-processor has received sufficient data from said data-requests to create said single request.

15

24. A system according to claim 23 in which any one data request can comprise any of the following: a partial data-request in which a portion of the data required to generate said single request is provided by that data-request; or a complete data-request in which all of the data required to generate said single request is provided by that data-request.

20

25. A system according to claim 24 in which said data-processing applications are arranged to add data to said data-requests which identifies whether said data request is partial data-request or a complete data-request.

25

26. A system according to claim 25 in which said data-receiving applications are arranged to add to said single request the capabilities of said data-receiving application and/or data-receiving device on which said application is running for a single application/device and/or for each application/device within a data-request group.

30

27. A system according to claim 26 in which said data-processor processes said capabilities received in said data-requests and ensure that said single request includes the capabilities for all data-receiving applications/devices within a request group.

5

28. A system according to claim 27 in which said data store sends a plurality of versions of the data requested in the single request according to the capabilities listed in the single request.

10 29. A system according to claim 13 in which the data-processor is any of the following: a proxy server; an application running on a data-receiving device; and/or a store such as a server.

15 30. A system according to claim 13 which is arranged to use the Hyper Text Transfer Protocol (http) for any of the following: data-requests from the data-receiving applications to the data-processor; single request to said store from said data-processor; receiving data from said store; transmitting data to said data-receiving applications.

20 31. A method of delivering and receiving data to and from two or more data-receiving applications running on one or more data-receiving devices, said method comprising receiving a plurality of requests for data, the plurality of requests forming a request group, from said data-receiving applications using a data-processor, evaluating said requests, determining a
25 data-request as belonging to the request group, sending a single request to a data store from the data-processor and further comprising processing data received from said data store in response to said single request using said data-processor, and distributing said received data, or portions thereof, to at least one of said data-receiving applications.

30

32. A data-structure comprising a request for data, a data-request group identity indicating membership of a group of a plurality of data-receiving applications and/or data-receiving devices forming a data-request group.
- 5 33. A data-structure according to claim 32 which includes any of the following: the number of data-requests that are to be made to said data-processor in a data-request group; a list of the data-receiving applications/devices that are to make a data-request to said data-processor.
- 10 34. A data-structure according to claim 32 which includes the capabilities of said data-receiving application and/or data-receiving device on which said application is running.
35. A data-structure according to claim 34 which includes the capabilities
15 for each data-receiving application/device within a data-request group.
36. A computer readable medium containing instructions, which when read onto a computer cause that computer to perform the method of claim 11.
- 20 37. A computer readable medium containing instructions, which when read onto a computer cause that computer to perform the method of claim 31.
- 25 38. A computer readable medium containing instructions, which when read onto a computing device cause that computing device to function as the computing device of claim 1.
- 30 39. A computer readable medium containing instructions, which when read onto a processor cause that processor to function as the data-processor of claim 13.

40. A computer readable medium containing the data-structure of claim 32.

41. A computing device which comprises a receiver and transmitter, the
5 receiver being arranged to receive a plurality of data requests from a
plurality of data-receiving applications, said plurality of requests forming a
request group, and also to receive data from a store, and the transmitter
being arranged to transmit data to said store and to transmit received-data
received from said store to said data-receiving applications, further, said
10 processor being arranged to process requests for data received by said
receiver from said data-receiving applications, evaluate said requests,
identify said received data requests as belonging to the group and to
produce a single request for the data-requests within said request group and
generated by said evaluation and to cause said transmitter to transmit said
15 single request to said store and further to receive data from said store,
process said received-data and to transmit said received data, or portions
thereof, to at least one of said data-receiving applications,

wherein said computing device is further arranged such that said
evaluation comprises one of: postponing sending said single request until
20 all requests within a request group have been received; sending said single
request on receipt of the first request within a request group; monitoring
requests within a request group and transmitting said single request when
the computing device has received sufficient data to create said single
request from data-requests made thereto; and merging data-requests
25 received from said data-receiving applications such that said single request
comprises a consolidated request comprising at least portions of said data-
requests.

42. A processing means which comprises a receiver and transmitting means,
30 the receiver being arranged to receive a plurality of data requests from a
plurality of data-receiving applications, said plurality of data requests

forming a request group, and also to receive data from a storage means, and the transmitting means being arranged to transmit data to said storage means and to transmit received-data received from said storage means to said data-receiving applications, further, said processing means being
5 arranged to process requests for data received by said receiver from said data-receiving applications, identify said received data request as belonging to the group, evaluate said requests and to produce a single request for the data-requests within said request group and generated by said evaluation and to cause said transmitting means to transmit said single request to said
10 data-storage means and further to receive data from said data-storage means, process said received-data and to transmit said received data, or portions thereof, to at least one of said data-receiving applications.

43. A system comprising at least two data-receiving applications running on
15 one or more data-receiving means, each data-receiving application being capable of requesting and receiving data, a data-processing means and a data-storage means connected to said data-receiving applications via said data-processing means, said data-processing means being arranged to receive a plurality of data-requests forming a request group from said data-
20 receiving applications to evaluate said data-requests, identify said received data requests as belonging to the group and to send a single request for the data-requests within said request group to said data-storage means and further being arranged to receive data from said data-storage means, in response to said single request, process said received data and distribute
25 said received data, or portions thereof, to at least one of said data-receiving applications.

44. A method of delivering and receiving data to and from two or more data-receiving applications running on one or more data-receiving means,
30 said method comprising receiving a plurality of requests for data, the plurality of request forming a request group, from said data-receiving

applications using a data-processing means, assessing said requests, identifying said received data requests as belonging to the group, sending a single request to a data-storage means from the data-processing means and further comprising processing data received from said data-storage means in response to said single request using said data-processing means, and distributing said received data, or portions thereof, to at least one of said data-receiving applications.